

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

31175803-004001

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name _____

Application Number

10/663286

Filed

September 16, 2003

First Named Inventor

Mario Scurati

Art Unit

1797

Examiner

Nathan A. Bowers

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)
- ☒ attorney or agent of record.
Registration number 41,417
- ☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

/Tamsen Valoir/

Signature

Tamsen Valoir, Ph.D.

Typed or printed name

713-427-5007

Telephone number

November 14, 2008

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Mario Scurati et al.

Conf. No. 3225

Application No.: 10/663,286

Art Unit: 1797

Filed: September 16, 2003

Examiner: Nathan A. Bowers

For: INTEGRATED DEVICE FOR BIOLOGICAL
ANALYSES

PRE-APPEAL BRIEF REQUEST FOR REVIEW

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Claims 1-54 are pending and 32-44 are withdrawn. Claims 1-31 and 45-54 stand rejected as obvious over Pourahmadi (US20020055167) in view of Levine (US6031286) and several other references. The claims were rejected in Office Actions, 8/03/06 and 5/04/07, and finally rejected in Office Action, 10/15/07. An RCE was filed 1/15/08 and the claims were again rejected in Office Action, 3/17/08, and finally rejected in Office Action, 8/15/08. Thus, the claims have been twice finally rejected and are ripe for appeal. Applicants request reconsideration of the final rejection of claims 1-31 and 45-54 in this Pre-Appeal Brief Conference for the reasons stated below.

CLAIM REJECTIONS UNDER 35 USC § 103

Examiner relied on Levine in every rejection as the reference that teaches the “buried channels” as claimed in the current application. However, immediately in the Abstract, Levine states that his method of making buried channels applies to trenches where the **height is larger than the width**:

(57)

ABSTRACT

A semiconductor device or other suitable substrate and method with single or multi layers of buried micro pipes are disclosed. This is achieved by controlling the aspect ratio of trenches as well as controlling the deposition characteristics of the material used to fill the trenches. A buried micro pipe is formed by filling a trench that has a height which is larger than a width thereof, so that the trench filler material lines sidewalls and bottom of the trench, and covers the top of the trench to form the micro pipe within the trench. Another

Mario Scurati, an inventor and person of ordinary skill in the art, testified that “Levine only allows the manufacture of **very small micropipes**, derived from **very narrow trenches with well-defined aspect ratio and deposition conditions**. . . Trying to make buried channels from wider trenches would cause so high stress that the process could not be exploited. For example, the technique of Levine is not suitable to form 200 μm (wide) by 150 μm (deep) channels as in paragraph [0089] of the current application.”¹

However, the Declaration was **cursorily dismissed** by the Examiner because the declaration allegedly “offers strictly opinion testimony and is largely void of factual evidence.”²

This is incorrect as a matter of law.³ That the trenches in Levine are narrow is a fact, that Levine states that the trenches must be deeper than wide is a fact, that the method cannot be applied to trenches that are wider than deeper is also a fact.

Examiner also stated that “Levine reference does not suggest that the disclosed micropipes are restricted to a narrow range of heights and widths.”⁴ Thus, believing that the Examiner didn’t

¹ DECLARATION UNDER 37 CFR 1.132, submitted 12/17/07 and 6/16/08 (emphasis added).

² Office Action, 8/15/08, p. 17.

³ See *In re Alton*, 76 F.3d 1168, 1174-75 (Fed. Cir. 1996) (“We do not read the declaration as asserting an opinion on the patentability of the claimed IFN-y analog. Rather, the declaration is offering factual evidence in an attempt to explain why one of ordinary skill in the art would have understood the specification to describe the modification involving the deletion of the first three amino acids independently of the modification at position 81. Dr. Wall's use of the words "it is my opinion" to preface what someone of ordinary skill in the art would have known does not transform the factual statements contained in the declaration into opinion testimony. **Consequently, the examiner's dismissal of the declaration on the grounds that "little weight is given an opinion affidavit on the ultimate legal question at issue" was error.**”) (emphasis added). A copy of the case is in the record.

⁴ Office Action, 8/15/08, p. 17.

understand Levine, Flavio Villa, an inventor of ordinary skill in the art, submitted a Declaration explaining Levine's technology to the Examiner in more detail and with simple graphics.⁵

Mr. Villa testified that "In order to form a buried channel, Levine uses a "thick" filler in combination with a "narrow and tall" trench, i.e. one with a large height (H) to width (W) ratio." That height is greater than width is stated several times in Levine, e.g.:

The trenches 10 are etched using conventional photo resist or other masking processes. By forming trenches 10 that have a large aspect ratio (H/W), in combination a CVD or PECVD layer having an appropriate deposition characteristics, a uniform desired hole or micro pipe is formed.

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Indeed, the Levine trenches are twice as deep as wide.

and bottom of each trench 10. The aspect ratio of the trench is chosen so that the SiO₂ filler 25 that lines the upper sidewall portions of the trench 10 meet at a pinch off point referenced by numeral 30 in FIG. 2. Illustratively the aspect ratio (H/W) is 2:1. This forms a micro pipe 35 in each trench 10, where the micro pipe 35 is buried in the trench 10.

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Mr. Villa continues by testifying that a "person with ordinary skills in the art would immediately understand that a 'thick' filler would make it possible to accumulate slightly more filler at the top opening of a trench instead of evenly coating the entire trench; a 'narrow and tall' would make it possible for the slightly accumulated filler to meet and 'close' at the top opening of the trench to form a buried channel. Please see the drawing below for illustration.



If, however, the trench is wide and shallow, the filler would **not** be able to meet at the top and 'close' the opening, and hence no buried channel would be formed. Please see the drawing below for illustration.



⁵ [SECOND] DECLARATION UNDER 37 CFR 1.132, submitted on 10/15/08.

⁶ Levine, Col. 3, ll. 41-45.

⁷ Levine, Col. 3, ll. 53-58.

Therefore, a person skilled in the art would understand the factual reasons why the technology of Levine will not work on trenches with low height (H) to width (W) ratio. Based on these facts, Levine also will not be able to produce buried channels with 200 μm in width and 150 μm in depth as described in paragraph [0089] of the current application.”

However, this Declaration was not entered as introducing **new** material.⁸

In fact this is **not** new material, but merely explains why Levine must use a narrow trench and why, therefore, it is inapplicable to the bigger channels of the invention. Therefore, the Declaration should have been entered and considered, and Applicants request same.

In addition to the statements throughout the Levine specification regarding the importance of using a deep trench, the criticality is confirmed again by claim 1 which recites this essential feature:

1. A method of forming a micro pipe on a substrate, comprising the steps of: forming a trench in a first layer on a surface of said substrate; forming a second layer over said first layer, **said trench having a height which is larger than a width thereof** so that said second layer lines sidewalls and bottom of said trench and covers a top of said trench to form said micro pipe within said trench; and forming a via hole in said second layer that reaches said micro pipe.

Furthermore, the method of Levine is unsuitable for making devices used for biological analyses due to the very small size of the channels which limits the volume of fluid that can be analyzed. *See* Second Declaration (“Because microfluidic devices for biochemical analyses often require large channels to accommodate biological fluids, a person skilled in the art would not consider Levine as suitable for the current invention. For the same reasons, a person skilled in the art would judge that there is no reasonable expectation of success for applying Levine to the current invention.”).

Finally, Applicants draw the Panels’ attention to the fact that the buried channel of Claim 1 cannot be made by the method of Levine, since the claimed channels are explicitly stated to be wider than deep:

⁸ Advisory Action, 10/27/08.

1. An integrated micro-device for analysis of a biological specimen, comprising:
 - a support comprising:
 - i) a first tank;
 - ii) a buried channel formed inside said support; and
 - iii) a detection chamber;
 wherein the first tank, the buried channel, and the detection chamber are fluidly coupled, wherein the buried channel is **approximately 200 μm wide by 150 μm deep** and wherein the first tank is accessible from outside of said support.

Thus, at the very least, the rejection of claims 1 (and its dependant claims) and 54 should be withdrawn and allowed to issue.

CONCLUSION

Applicants believe that the claims are in condition for allowance and respectfully request that the Panel grant such action. If any questions or issues remain, the Panel is invited to contact the attorney at the number noted below. The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. 50-3420 reference 31175803-004001 (Valoir).

Dated: November 14, 2008

Respectfully submitted,

By /Tamsen Valoir/

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